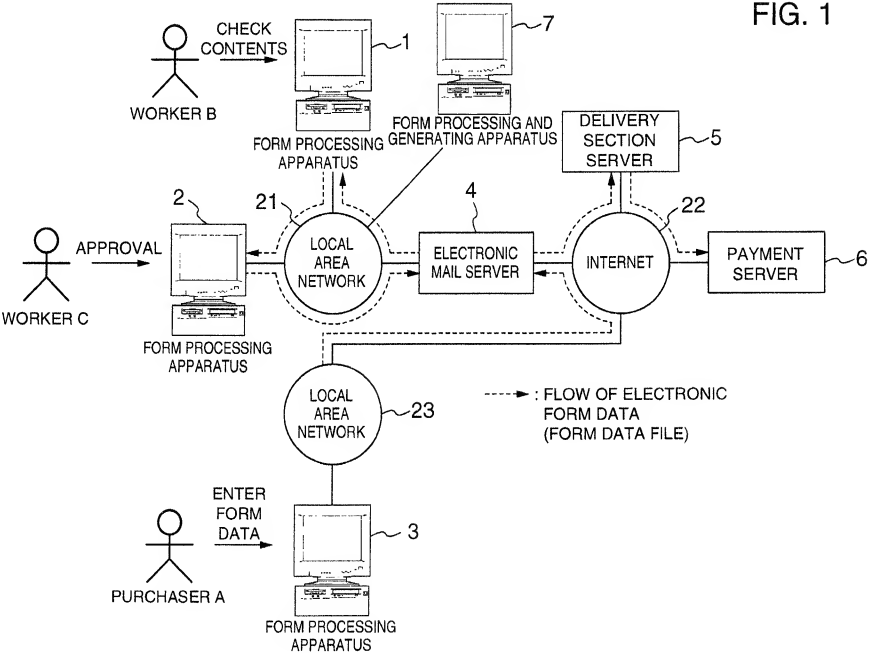
FIG. 1


CHECK CONTENTS
WORKER B
1
7
FORM PROCESSING APPARATUS
FORM PROCESSING AND GENERATING APPARATUS
DELIVERY SECTION SERVER
5
2
21
4
22
APPROVAL
WORKER C
LOCAL AREA NETWORK
ELECTRONIC MAIL SERVER
INTERNET
PAYMENT SERVER
6
FORM PROCESSING APPARATUS
LOCAL AREA NETWORK
23
: FLOW OF ELECTRONIC FORM DATA (FORM DATA FILE)
ENTER FORM DATA
PURCHASER A
3
FORM PROCESSING APPARATUS

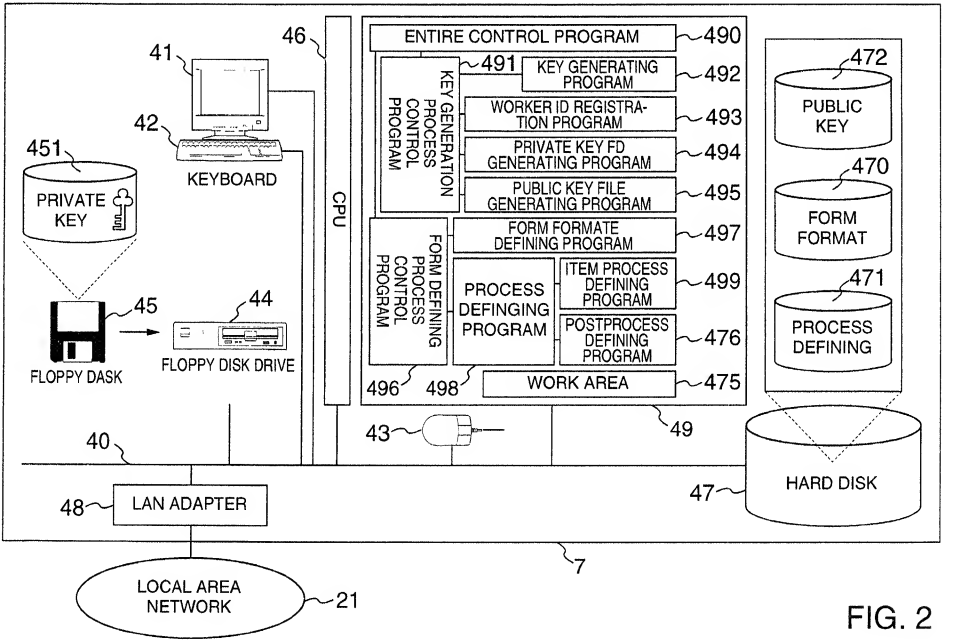

ENTIRE CONTROL PROGRAM
490
KEY GENERATING PROGRAM
491
492
WORKER ID REGISTRATION PROGRAM
493
PRIVATE KEY FD GENERATING PROGRAM
494
PUBLIC KEY FILE GENERATING PROGRAM
495
KEY GENERATION PROCESS CONTROL PROGRAM
FORM FORMATE DEFINING PROGRAM
497
FORM DEFINING PROCESS CONTROL PROGRAM
PROCESS DEFINGING PROGRAM
ITEM PROCESS DEFINING PROGRAM
499
POSTPROCESS DEFINING PROGRAM
476
WORK AREA
475
496
498
49
46
CPU
41
42
KEYBOARD
451
PRIVATE KEY
45
FLOPPY DASK
44
FLOPPY DISK DRIVE
43
40
48
LAN ADAPTER
LOCAL AREA NETWORK
21
7
472
PUBLIC KEY
470
FORM FORMAT
471
PROCESS DEFINING
47
HARD DISK

FIG. 2

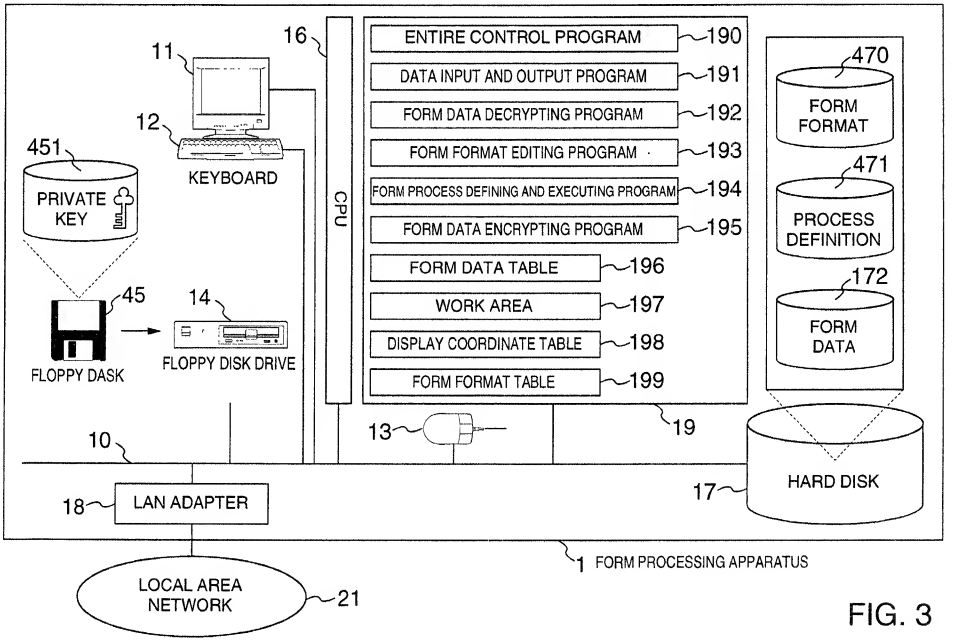

16
11
12
KEYBOARD
451
PRIVATE KEY
45
FLOPPY DASK
14
FLOPPY DISK DRIVE
CPU
ENTIRE CONTROL PROGRAM
190
DATA INPUT AND OUTPUT PROGRAM
191
FORM DATA DECRYPTING PROGRAM
192
FORM FORMAT EDITING PROGRAM
193
FORM PROCESS DEFINING AND EXECUTING PROGRAM
194
FORM DATA ENCRYPTING PROGRAM
195
FORM DATA TABLE
196
WORK AREA
197
DISPLAY COORDINATE TABLE
198
FORM FORMAT TABLE
199
19
13
10
18
LAN ADAPTER
470
FORM FORMAT
471
PROCESS DEFINITION
172
FORM DATA
17
HARD DISK
1 FORM PROCESSING APPARATUS
LOCAL AREA NETWORK
21

FIG. 3

FIG. 4

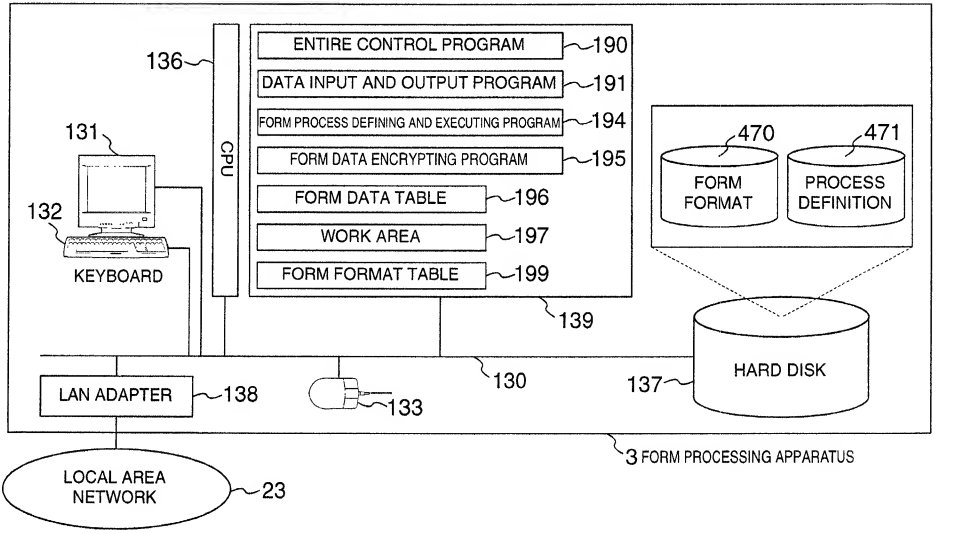

136
CPU
ENTIRE CONTROL PROGRAM
190
DATA INPUT AND OUTPUT PROGRAM
191
FORM PROCESS DEFINING AND EXECUTING PROGRAM
194
FORM DATA ENCRYPTING PROGRAM
195
FORM DATA TABLE
196
WORK AREA
197
FORM FORMAT TABLE
199
139
131
132
KEYBOARD
470
471
FORM FORMAT
PROCESS DEFINITION
HARD DISK
137
130
LAN ADAPTER
138
133
3 FORM PROCESSING APPARATUS
LOCAL AREA NETWORK
23

FIG. 5A

PRIVATE KEY FILE 451

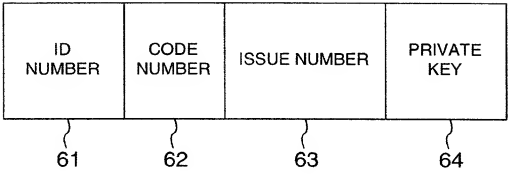


FIG. 5B

PUBLIC KEY FILE 451

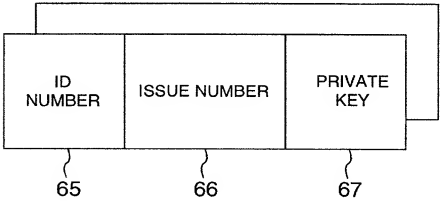


FIG. 6

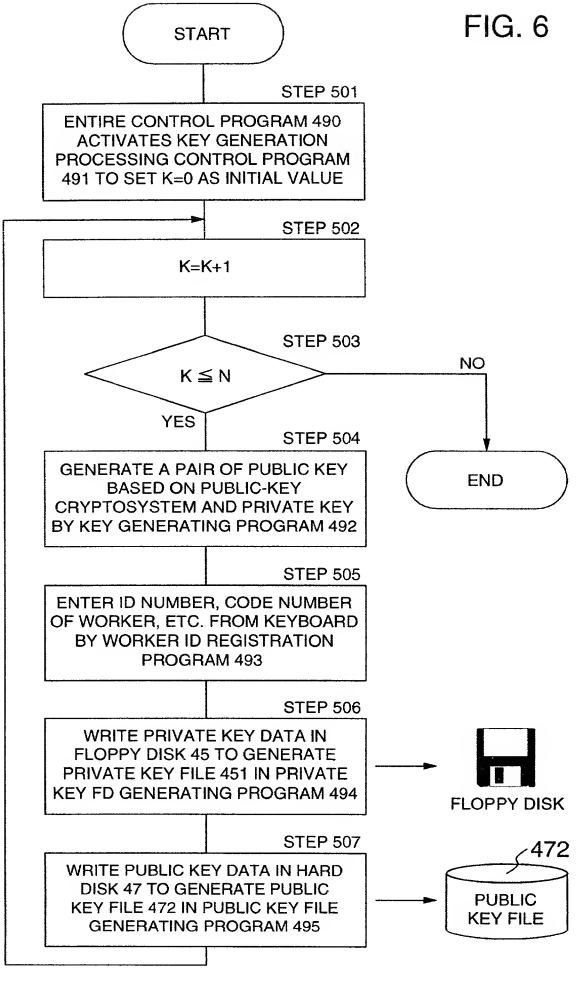

START
STEP 501
ENTIRE CONTROL PROGRAM 490 ACTIVATES KEY GENERATION PROCESSING CONTROL PROGRAM 491 TO SET K=0 AS INITIAL VALUE
STEP 502
K=K+1
STEP 503
K ≦ N
NO
YES
END
STEP 504
GENERATE A PAIR OF PUBLIC KEY BASED ON PUBLIC-KEY CRYPTOSYSTEM AND PRIVATE KEY BY KEY GENERATING PROGRAM 492
STEP 505
ENTER ID NUMBER, CODE NUMBER OF WORKER, ETC. FROM KEYBOARD BY WORKER ID REGISTRATION PROGRAM 493
STEP 506
WRITE PRIVATE KEY DATA IN FLOPPY DISK 45 TO GENERATE PRIVATE KEY FILE 451 IN PRIVATE KEY FD GENERATING PROGRAM 494
FLOPPY DISK
STEP 507
472
WRITE PUBLIC KEY DATA IN HARD DISK 47 TO GENERATE PUBLIC KEY FILE 472 IN PUBLIC KEY FILE GENERATING PROGRAM 495
PUBLIC KEY FILE

FIG. 7

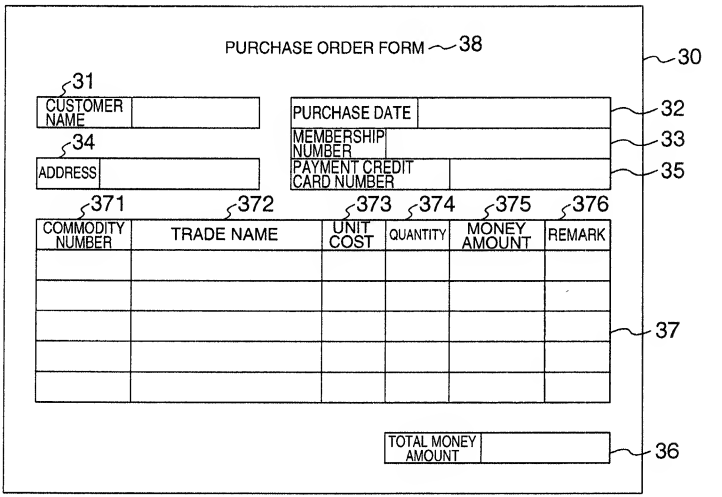

PURCHASE ORDER FORM
38
30
31
CUSTOMER NAME
34
ADDRESS
PURCHASE DATE
32
MEMBERSHIP NUMBER
33
PAYMENT CREDIT CARD NUMBER
35
371
372
373
374
375
376
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
37
TOTAL MONEY AMOUNT
36

FIG. 8

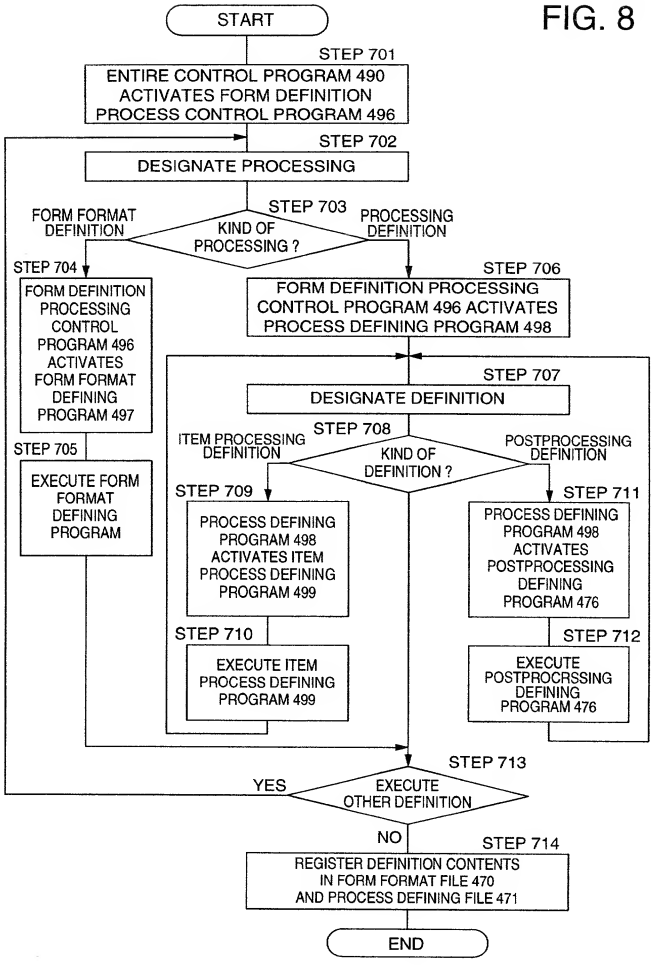

START
STEP 701
ENTIRE CONTROL PROGRAM 490 ACTIVATES FORM DEFINITION PROCESS CONTROL PROGRAM 496
STEP 702
DESIGNATE PROCESSING
STEP 703
FORM FORMAT DEFINITION
KIND OF PROCESSING ?
PROCESSING DEFINITION
STEP 704
FORM DEFINITION PROCESSING CONTROL PROGRAM 496 ACTIVATES FORM FORMAT DEFINING PROGRAM 497
STEP 705
EXECUTE FORM FORMAT DEFINING PROGRAM
STEP 706
FORM DEFINITION PROCESSING CONTROL PROGRAM 496 ACTIVATES PROCESS DEFINING PROGRAM 498
STEP 707
DESIGNATE DEFINITION
STEP 708
ITEM PROCESSING DEFINITION
KIND OF DEFINITION ?
POSTPROCESSING DEFINITION
STEP 709
PROCESS DEFINING PROGRAM 498 ACTIVATES ITEM PROCESS DEFINING PROGRAM 499
STEP 710
EXECUTE ITEM PROCESS DEFINING PROGRAM 499
STEP 711
PROCESS DEFINING PROGRAM 498 ACTIVATES POSTPROCESSING DEFINING PROGRAM 476
STEP 712
EXECUTE POSTPROCRSSING DEFINING PROGRAM 476
STEP 713
YES
EXECUTE OTHER DEFINITION
NO
STEP 714
REGISTER DEFINITION CONTENTS IN FORM FORMAT FILE 470 AND PROCESS DEFINING FILE 471
END

FIG. 9

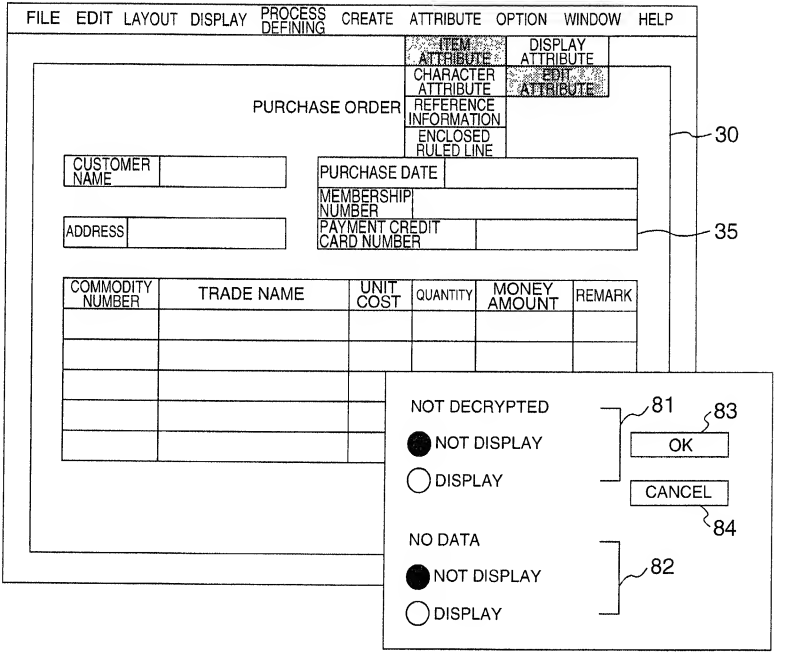

FILE EDIT LAYOUT DISPLAY PROCESS DEFINING CREATE ATTRIBUTE OPTION WINDOW HELP
ITEM ATTRIBUTE
DISPLAY ATTRIBUTE
CHARACTER ATTRIBUTE
EDIT ATTRIBUTE
REFERENCE INFORMATION
ENCLOSED RULED LINE
PURCHASE ORDER
30
CUSTOMER NAME
PURCHASE DATE
MEMBERSHIP NUMBER
ADDRESS
PAYMENT CREDIT CARD NUMBER
35
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
NOT DECRYPTED
81
83
NOT DISPLAY
DISPLAY
OK
CANCEL
84
NO DATA
82
NOT DISPLAY
DISPLAY

FIG. 10

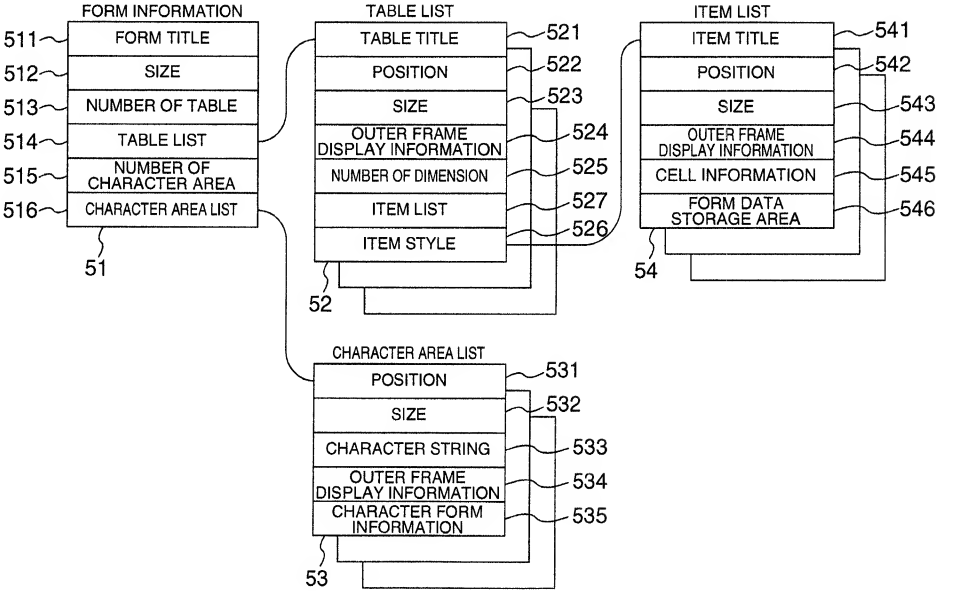

FORM INFORMATION
511
FORM TITLE
512
SIZE
513
NUMBER OF TABLE
514
TABLE LIST
515
NUMBER OF CHARACTER AREA
516
CHARACTER AREA LIST
51
TABLE LIST
TABLE TITLE
521
POSITION
522
SIZE
523
OUTER FRAME DISPLAY INFORMATION
524
NUMBER OF DIMENSION
525
ITEM LIST
527
ITEM STYLE
526
52
ITEM LIST
ITEM TITLE
541
POSITION
542
SIZE
543
OUTER FRAME DISPLAY INFORMATION
544
CELL INFORMATION
545
FORM DATA STORAGE AREA
546
54
CHARACTER AREA LIST
POSITION
531
SIZE
532
CHARACTER STRING
533
OUTER FRAME DISPLAY INFORMATION
534
CHARACTER FORM INFORMATION
535
53

FIG. 11A

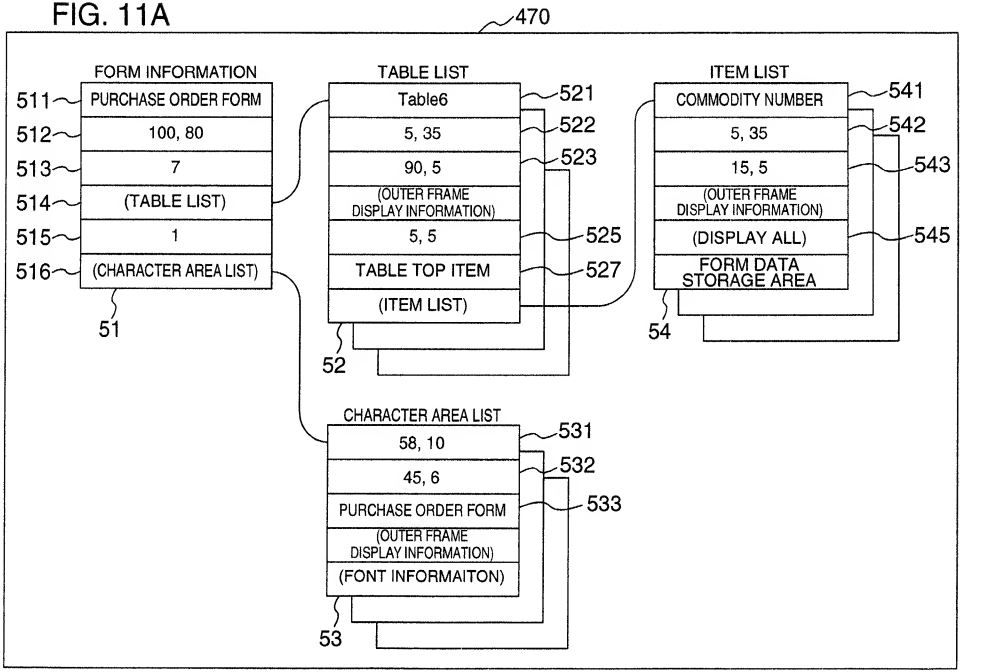

470
FORM INFORMATION
511
PURCHASE ORDER FORM
512
100, 80
513
7
514
(TABLE LIST)
515
1
516
(CHARACTER AREA LIST)
51
TABLE LIST
Table6
521
5, 35
522
90, 5
523
(OUTER FRAME DISPLAY INFORMATION)
5, 5
525
TABLE TOP ITEM
527
(ITEM LIST)
52
ITEM LIST
COMMODITY NUMBER
541
5, 35
542
15, 5
543
(OUTER FRAME DISPLAY INFORMATION)
(DISPLAY ALL)
545
FORM DATA STORAGE AREA
54
CHARACTER AREA LIST
58, 10
531
45, 6
532
PURCHASE ORDER FORM
533
(OUTER FRAME DISPLAY INFORMATION)
(FONT INFORMAITON)
53

FIG. 11B

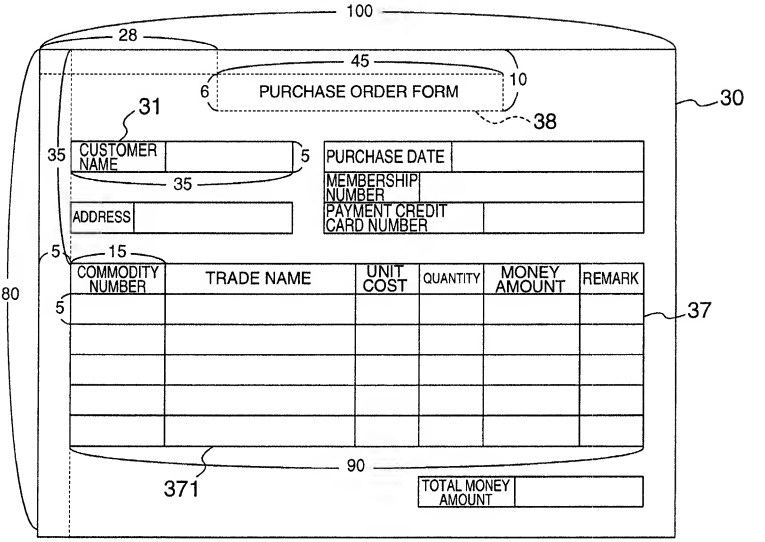
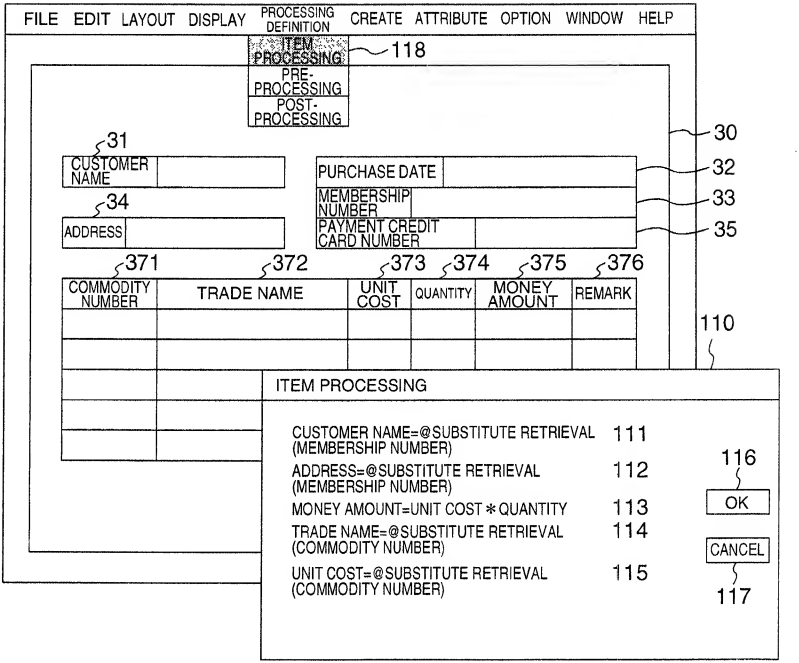

100
28
45
6
PURCHASE ORDER FORM
10
30
31
38
35
CUSTOMER NAME
5
PURCHASE DATE
35
MEMBERSHIP NUMBER
ADDRESS
PAYMENT CREDIT CARD NUMBER
15
5
80
5
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
37
90
371
TOTAL MONEY AMOUNT

FIG.12


FILE EDIT LAYOUT DISPLAY PROCESSING DEFINITION CREATE ATTRIBUTE OPTION WINDOW HELP
ITEM PROCESSING
PRE-PROCESSING
POST-PROCESSING
118
30
31
CUSTOMER NAME
34
ADDRESS
PURCHASE DATE
MEMBERSHIP NUMBER
PAYMENT CREDIT CARD NUMBER
32
33
35
371
372
373
374
375
376
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
110
ITEM PROCESSING
CUSTOMER NAME=@SUBSTITUTE RETRIEVAL (MEMBERSHIP NUMBER) 111
ADDRESS=@SUBSTITUTE RETRIEVAL (MEMBERSHIP NUMBER) 112
MONEY AMOUNT=UNIT COST * QUANTITY 113
TRADE NAME=@SUBSTITUTE RETRIEVAL (COMMODITY NUMBER) 114
UNIT COST=@SUBSTITUTE RETRIEVAL (COMMODITY NUMBER) 115
116
OK
CANCEL
117

2024.10.22 20:22:07

FIG.13

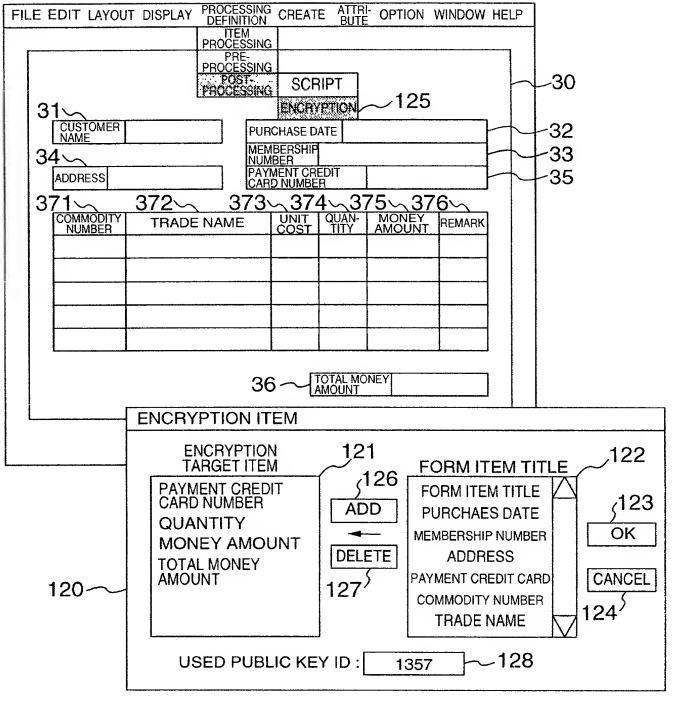


FIG. 14

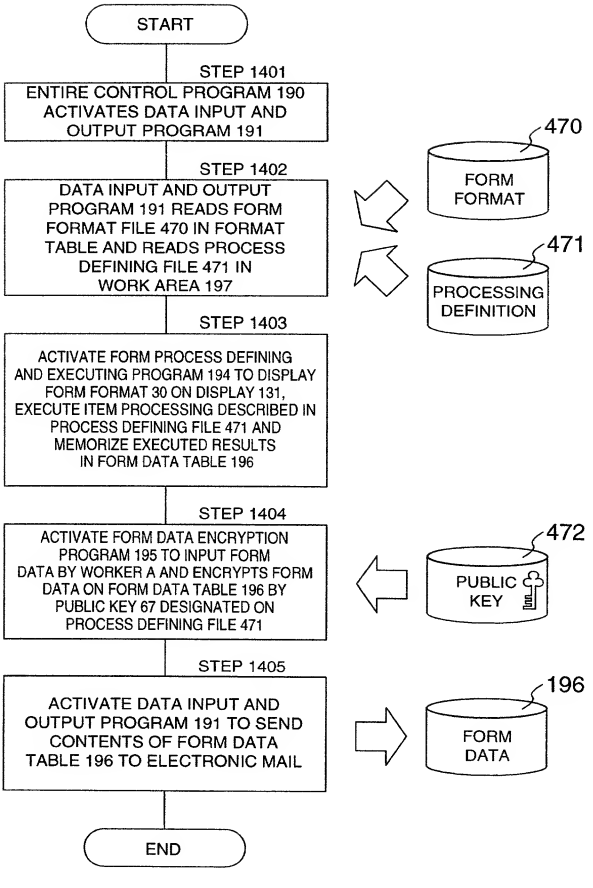

START
STEP 1401
ENTIRE CONTROL PROGRAM 190 ACTIVATES DATA INPUT AND OUTPUT PROGRAM 191
STEP 1402
DATA INPUT AND OUTPUT PROGRAM 191 READS FORM FORMAT FILE 470 IN FORMAT TABLE AND READS PROCESS DEFINING FILE 471 IN WORK AREA 197
470
FORM FORMAT
471
PROCESSING DEFINITION
STEP 1403
ACTIVATE FORM PROCESS DEFINING AND EXECUTING PROGRAM 194 TO DISPLAY FORM FORMAT 30 ON DISPLAY 131, EXECUTE ITEM PROCESSING DESCRIBED IN PROCESS DEFINING FILE 471 AND MEMORIZE EXECUTED RESULTS IN FORM DATA TABLE 196
STEP 1404
ACTIVATE FORM DATA ENCRYPTION PROGRAM 195 TO INPUT FORM DATA BY WORKER A AND ENCRYPTS FORM DATA ON FORM DATA TABLE 196 BY PUBLIC KEY 67 DESIGNATED ON PROCESS DEFINING FILE 471
472
PUBLIC KEY
STEP 1405
ACTIVATE DATA INPUT AND OUTPUT PROGRAM 191 TO SEND CONTENTS OF FORM DATA TABLE 196 TO ELECTRONIC MAIL
196
FORM DATA
END

FIG. 15

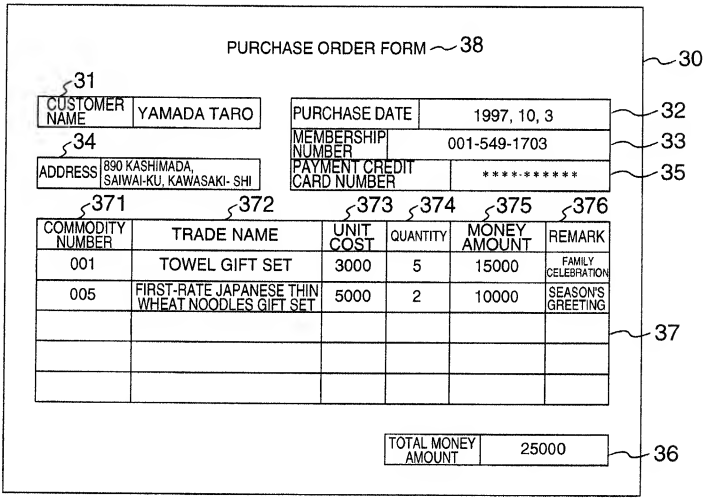

PURCHASE ORDER FORM
38
30
31
CUSTOMER NAME
YAMADA TARO
PURCHASE DATE
1997, 10, 3
32
MEMBERSHIP NUMBER
001-549-1703
33
34
ADDRESS
890 KASHIMADA, SAIWAI-KU, KAWASAKI- SHI
PAYMENT CREDIT CARD NUMBER
**** -******
35
371
372
373
374
375
376
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
001
TOWEL GIFT SET
3000
5
15000
FAMILY CELEBRATION
005
FIRST-RATE JAPANESE THIN WHEAT NOODLES GIFT SET
5000
2
10000
SEASON'S GREETING
37
TOTAL MONEY AMOUNT
25000
36

FIG. 16

FORM DATA TABLE 196

		1222
1203	1357	
1204	YAMADA TARO	0
1205	890 KASHIMADA SAIWAI-KU, KAWASAKI-SHI	0
1205	1997, 10, 3	0
1207	001-549-1703	0
1208	1234-567890	1
1209	001	0
1210	TOWEL GIFT SET	0
1211	3000	0
1213	5	1
1213	15000	1
1214	FAMILY CELEBRATION	0
1215	005	0
1216	FIRST-RATE JAPANESE THIN WHEAT NOODLES GIFT SET	0
1217	5000	0
1218	2	1
1219	10000	1
1220	SEASON'S GREETING	0
	≀	≀
1221	25000	1

FIG. 17

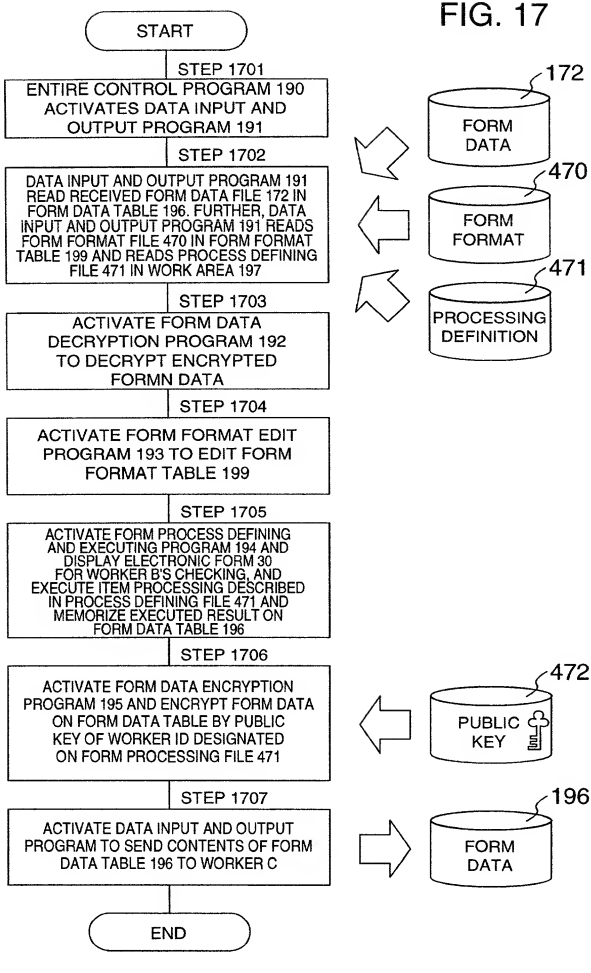

START
STEP 1701
ENTIRE CONTROL PROGRAM 190 ACTIVATES DATA INPUT AND OUTPUT PROGRAM 191
STEP 1702
DATA INPUT AND OUTPUT PROGRAM 191 READ RECEIVED FORM DATA FILE 172 IN FORM DATA TABLE 196. FURTHER, DATA INPUT AND OUTPUT PROGRAM 191 READS FORM FORMAT FILE 470 IN FORM FORMAT TABLE 199 AND READS PROCESS DEFINING FILE 471 IN WORK AREA 197
STEP 1703
ACTIVATE FORM DATA DECRYPTION PROGRAM 192 TO DECRYPT ENCRYPTED FORMN DATA
STEP 1704
ACTIVATE FORM FORMAT EDIT PROGRAM 193 TO EDIT FORM FORMAT TABLE 199
STEP 1705
ACTIVATE FORM PROCESS DEFINING AND EXECUTING PROGRAM 194 AND DISPLAY ELECTRONIC FORM 30 FOR WORKER B'S CHECKING, AND EXECUTE ITEM PROCESSING DESCRIBED IN PROCESS DEFINING FILE 471 AND MEMORIZE EXECUTED RESULT ON FORM DATA TABLE 196
STEP 1706
ACTIVATE FORM DATA ENCRYPTION PROGRAM 195 AND ENCRYPT FORM DATA ON FORM DATA TABLE BY PUBLIC KEY OF WORKER ID DESIGNATED ON FORM PROCESSING FILE 471
STEP 1707
ACTIVATE DATA INPUT AND OUTPUT PROGRAM TO SEND CONTENTS OF FORM DATA TABLE 196 TO WORKER C
END
172
FORM DATA
470
FORM FORMAT
471
PROCESSING DEFINITION
472
PUBLIC KEY
196
FORM DATA

FIG. 18

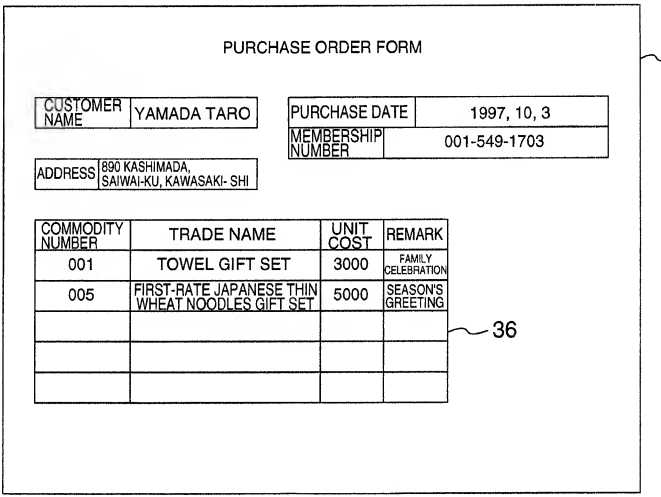

PURCHASE ORDER FORM
1800
CUSTOMER NAME
YAMADA TARO
PURCHASE DATE
1997, 10, 3
MEMBERSHIP NUMBER
001-549-1703
ADDRESS
890 KASHIMADA, SAIWAI-KU, KAWASAKI- SHI
COMMODITY NUMBER
TRADE NAME
UNIT COST
REMARK
001
TOWEL GIFT SET
3000
FAMILY CELEBRATION
005
FIRST-RATE JAPANESE THIN WHEAT NOODLES GIFT SET
5000
SEASON'S GREETING
36

FIG. 19

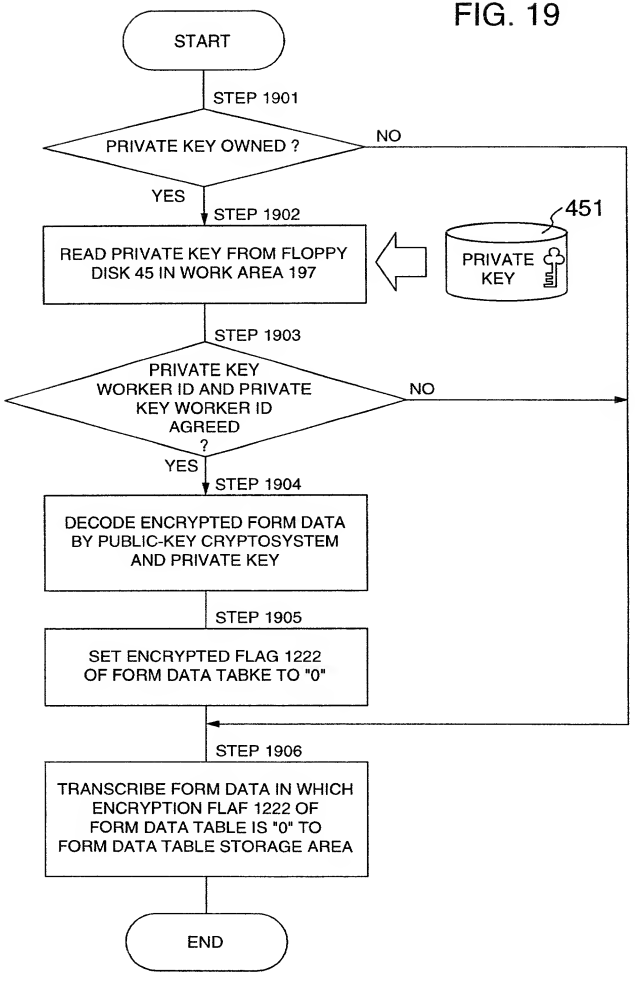

START
STEP 1901
PRIVATE KEY OWNED ?
NO
YES
STEP 1902
451
READ PRIVATE KEY FROM FLOPPY DISK 45 IN WORK AREA 197
PRIVATE KEY
STEP 1903
PRIVATE KEY WORKER ID AND PRIVATE KEY WORKER ID AGREED ?
NO
YES
STEP 1904
DECODE ENCRYPTED FORM DATA BY PUBLIC-KEY CRYPTOSYSTEM AND PRIVATE KEY
STEP 1905
SET ENCRYPTED FLAG 1222 OF FORM DATA TABKE TO "0"
STEP 1906
TRANSCRIBE FORM DATA IN WHICH ENCRYPTION FLAF 1222 OF FORM DATA TABLE IS "0" TO FORM DATA TABLE STORAGE AREA
END

FIG. 20

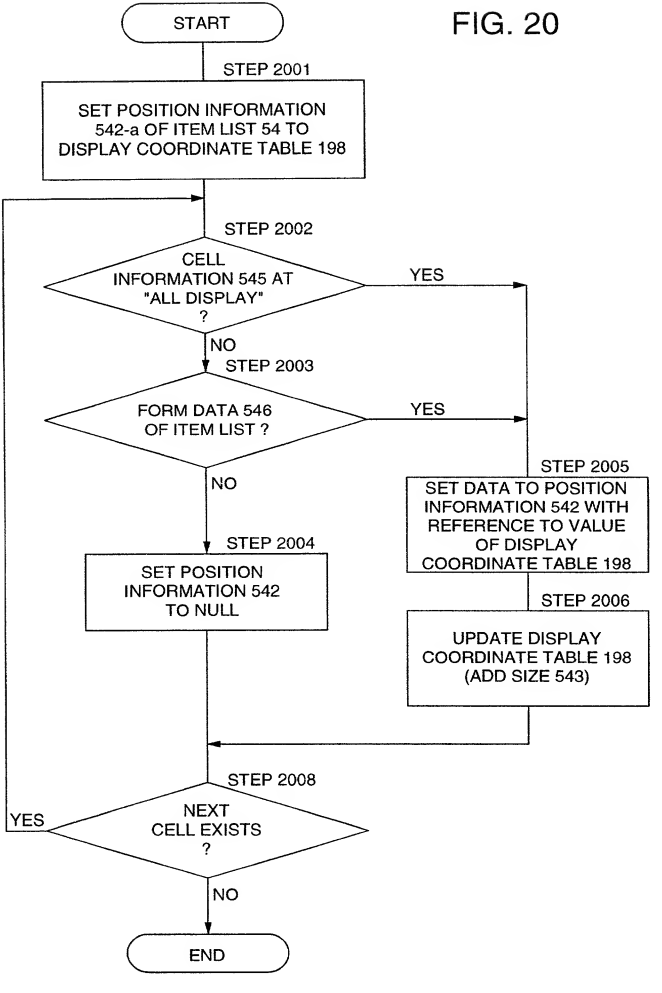
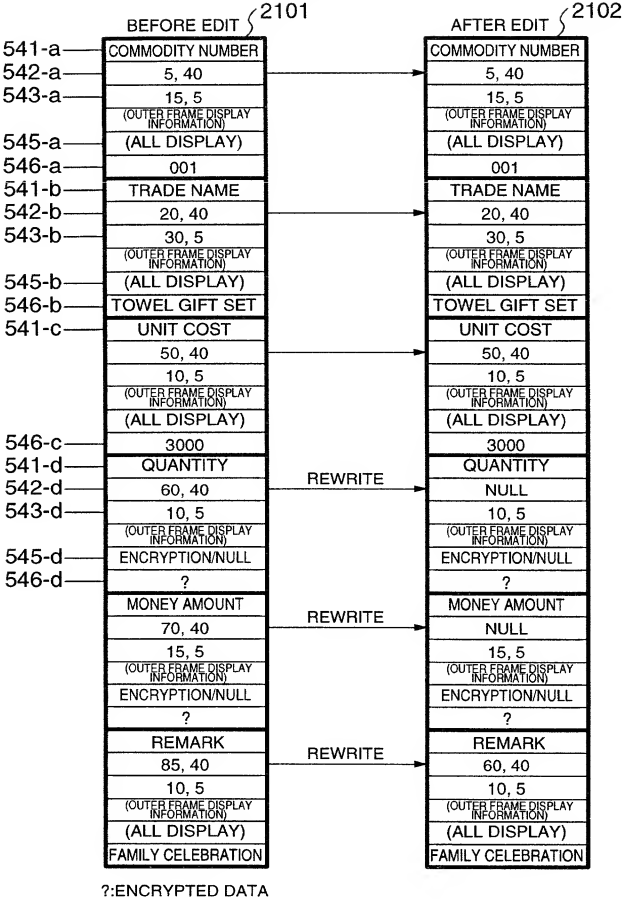
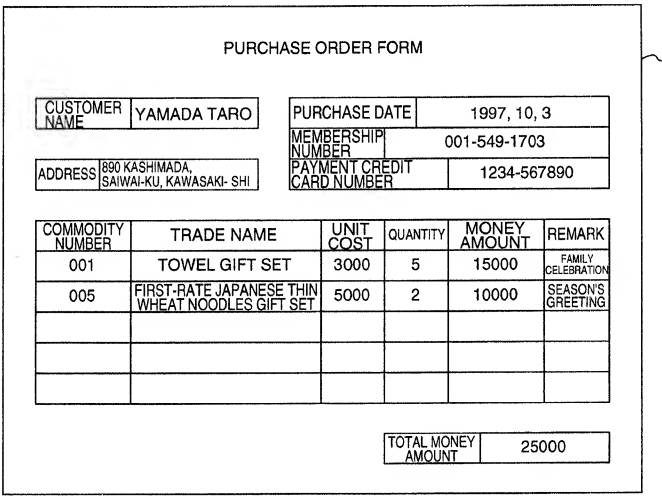

START
STEP 2001
SET POSITION INFORMATION 542-a OF ITEM LIST 54 TO DISPLAY COORDINATE TABLE 198
STEP 2002
CELL INFORMATION 545 AT "ALL DISPLAY" ?
YES
NO
STEP 2003
FORM DATA 546 OF ITEM LIST ?
YES
NO
STEP 2004
SET POSITION INFORMATION 542 TO NULL
STEP 2005
SET DATA TO POSITION INFORMATION 542 WITH REFERENCE TO VALUE OF DISPLAY COORDINATE TABLE 198
STEP 2006
UPDATE DISPLAY COORDINATE TABLE 198 (ADD SIZE 543)
STEP 2008
NEXT CELL EXISTS ?
YES
NO
END

FIG. 21



?:ENCRYPTED DATA

FIG. 22


PURCHASE ORDER FORM
2300
CUSTOMER NAME
YAMADA TARO
ADDRESS
890 KASHIMADA, SAIWAI-KU, KAWASAKI- SHI
PURCHASE DATE
1997, 10, 3
MEMBERSHIP NUMBER
001-549-1703
PAYMENT CREDIT CARD NUMBER
1234-567890
COMMODITY NUMBER
TRADE NAME
UNIT COST
QUANTITY
MONEY AMOUNT
REMARK
001
TOWEL GIFT SET
3000
5
15000
FAMILY CELEBRATION
005
FIRST-RATE JAPANESE THIN WHEAT NOODLES GIFT SET
5000
2
10000
SEASON'S GREETING
TOTAL MONEY AMOUNT
25000